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PATENT APPLICATION

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

In re application of

Docket No: Q63077

Seiji UMEMOTO, et al.

Appln. No.: 09/782,201

Group Art Unit: 2871

Confirmation No.: 9861

Examiner: Tai V. DUONG

Filed: February 14, 2001

For: LIQUID-CRYSTAL DISPLAY DEVICE AND COLORED RESIN SUBSTRATE

SUBMISSION OF APPEAL BRIEF

MAIL STOP APPEAL BRIEF - PATENTS

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Submitted herewith please find an Appeal Brief. A check for the statutory fee of \$500.00 is attached. The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account. A duplicate copy of this paper is attached.

Respectfully submitted,

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WASHINGTON OFFICE

23373

CUSTOMER NUMBER

Date: January 11, 2005



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APPEAL BRIEF UNDER 37 C.F.R. § 41.37

MAIL STOP APPEAL BRIEF - PATENTS

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P.O. Box 1450

Alexandria, VA 22313-1450

Sir:

In accordance with the provisions of 37 C.F.R. § 41.37, Appellants submit the following:

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APPEAL BRIEF UNDER 37 C.F.R. §41.37
U.S. Appln. No. 09/782,201

I. REAL PARTY IN INTEREST

The real party in interest is Nitto Denko Corporation, the assignee of the present application. The assignment was recorded on February 14, 2001, at reel 011570, frame 0386.

II. RELATED APPEALS AND INTERFERENCES

Appellants, Appellants' counsel, and the assignee of the application are not aware of any other appeals or interferences which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

III. STATUS OF CLAIMS

Claims 1-5 and 7-8 are pending in the application.

Claims 1-5 and 7-8 are rejected.

Claims 1-5 and 7-8 are being appealed.

Claims 1-5 and 7-8 are set forth in their entirety in the Claims Appendix submitted herewith.

IV. STATUS OF AMENDMENTS

On August 23, 2004, a Request for Reconsideration Under 37 C.F.R. § 1.116 was filed in response to the final Office Action mailed May 21, 2004.

The Request for Reconsideration did not include an amendment to the claims.

The Advisory Action mailed September 15, 2004, indicates that the remarks submitted in the August 23rd Request for Reconsideration have been considered but do not place the application in condition for allowance. The Examiner attached an additional page to the Advisory Action and provided therein comments on why the application is not in condition for allowance.

V. SUMMARY OF THE CLAIMED SUBJECT MATTER

Claim 1 is an independent claim. It is drawn to a liquid-crystal display device. Paragraph [0005] of the specification. The liquid-crystal display device comprises a liquid-crystal panel. Paragraph [0007]. The liquid-crystal panel includes a back side substrate constituted by a colored resin substrate having an electrode. Paragraphs [0007] through [0011] and [0013]. The liquid-crystal panel also includes a visual side transparent substrate having a transparent electrode. Paragraphs [0012] and [0013]. The liquid-crystal panel further includes a reflection type liquid-crystal layer interposed between the visual side substrate and the back side substrate. Paragraphs [0007], [0016], and [0017].

Claim 2 is also an independent claim. It is drawn to a backside substrate. The backside substrate comprises a colored resin substrate which is formed of at least a mixture of a transparent resin and a colorant. Paragraphs [0007] through [0011]. The backside substrate also comprises a transparent electrically conductive film on at least one side of the colored resin substrate. Paragraph [0013] through [0015]. Claim 2 requires the backside substrate to be attached to a visual side substrate having an electrode and a transparent resin. Paragraphs [0007], [0012], and [0016].

Claim 3 depends from Claim 2. It requires the colored resin substrate to be not thicker than 1 mm. Paragraph [0011].

Claim 4 depends from Claim 2. It requires the colored resin substrate to be black. Paragraph [0011].

Claim 5 depends from Claim 2. It requires the colored resin substrate to have a glass transition temperature of not lower than 90°C. Paragraph [0008].

Claim 7 depends from Claim 1. It requires that the back side substrate disposed on the back side of the liquid-crystal panel be composed of a colored resin substrate formed of at least a mixture of a transparent resin and a colorant. Paragraphs [0007] through [0011]. It also requires

the presence of a transparent electrically conductive film on at least one side of the colored resin substrate to form the backside substrate. Paragraphs [0013] through [0015]. It further requires the reflection type liquid-crystal layer to be of a macromolecular dispersion type or of a cholesteric liquid-crystal type. Paragraph [0017].

Claim 8 depends from Claim 1. It requires the back side substrate to absorb light. Paragraph [0006].

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

The issues presented for review are:

(1) whether the Examiner erred in rejecting Claims 1-2, 4, and 7-8 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,493,430 (“Lu”) in view of U.S. Patent No. 5,648,197 (“Kuroda”); and

(2) whether the Examiner erred in rejecting Claims 3 and 5 under 35 U.S.C. § 103(a) as being unpatentable over Lu and Kuroda, as applied to Claim 2, and further in view of U.S. Patent No. 5,645,901 (“Fukuchi”).

VII. ARGUMENT

(1) §103(a) Obviousness Rejection of Claims 1-2, 4, and 7-8

Claims 1-2, 4, and 7-8 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Lu in view of Kuroda.

To summarize, the Examiner has taken the position that Lu fails to disclose a colored resin substrate. Rather, Lu discloses a substrate 12 and a colored layer 18 thereon.

The Examiner turns to Kuroda to assert that the use of a colored resin substrate was known. Specifically, the Examiner asserts that Kuroda discloses a transparent substrate with a light absorbing layer (FIG. 1) or, alternatively, a colored resin substrate (FIG. 4).

The Examiner asserts that it is common practice to employ a dual function layer or element in the liquid crystal art. In addition, the Examiner notes that the colored resin substrate in Kuroda provides the same function of light absorption as does Lu. Thus, the Examiner concludes that the use of a colored substrate having the functions of a substrate and a color filter would have been obvious even though Kuroda is not directed to liquid crystal technology. The Examiner attached evidence to the final Office Action mailed May 21, 2004, in order to show that the concept of employing a dual function layer or element is common in the liquid crystal art.

In short, the Examiner is basically arguing that it would have been obvious to modify Lu in view of the common knowledge in the art of liquid crystal technology (use of single substrate for two functions) and the Kuroda reference (use of a colored resin substrate).

The Error in the Rejection

The error in the rejection is that the combination of Lu and Kuroda does not establish a *prima facie* case of obviousness against the subject matter of Claims 1-2, 4, and 7-8.

Why Claims 1-2, 4, and 7-8 are Patentable Under 35 U.S.C. § 103

Focusing on independent Claims 1 and 2, they each require the presence of a colored resin substrate.

Independent Claims 1 and 2 (and dependent Claims 4 and 7-8) are patentable because there has not been identified a reasonable motivation or suggestion to modify Lu by replacing its substrate 12 and colored layer 18 with the colored resin substrate of Kuroda.

In this regard, the mere possibility that the prior art may be modified so as to arrive at the claimed invention does not render obvious the invention unless the prior art suggested the desirability of the modification. The suggestion to modify must be “clear and particular.” In re Sang Su Lee, 277 F.3d 1338, 1343, 61 USPQ2d 1430, 1433-1434 (Fed. Cir. 2002); Winner Int’l Royalty Corp. v. Ching-Rong Wang, 202 F.3d 1340, 1348-1349, 53 USPQ2d 1580, 1586-1587 (Fed. Cir. 2000).

In the present case, the only motivation identified by the Examiner for combining Lu and Kuroda is not supported by the disclosures of Lu and Kuroda or by the evidence attached to the May 21st final Office Action.

The alleged motivation for the prior art rejection is based on “reducing the thickness, the weight and the manufacturing cost of the LCD device”¹; however, neither Lu nor Kuroda is concerned with these features or objectives. **Only the present application** is concerned with these features. Furthermore, the evidence attached by the Examiner to the May 21st final Office Action is simply a definition of subclass 162 and a schedule of class 349. It does not make up for the deficiencies of Lu and Kuroda; it does not provide a “clear and particular” suggestion to modify Lu by replacing its substrate 12 and colored layer 18 with the colored resin substrate of Kuroda. Thus, the motivation for the alleged combination is only based on hindsight.

¹ See final Office Action, sentence bridging pages 2 and 3.

There are additional reasons why the combination of Lu and Kuroda does not establish a *prima facie* case of obviousness against the subject matter of Claims 1-2, 4, and 7-8.

Lu discloses a colored layer 18 formed on the inside of the substrate 12 of a liquid crystal display. Thus, the colored layer 18 is provided separately from the substrate 12. In addition, the colored layer 18 is intended to act as a reflecting layer (col. 3, lines 60-65, "...so that light incident on the display will pass through the electrode layer 20 and reflect off the back paint layer 18."). Thus, Lu is directed to a backside substrate which reflects rather than absorbs light.

Kuroda discloses a colored substrate 12 for an optical disk. Kuroda is not directed to a liquid-crystal display device as in Lu. Given these two completely different devices, one would not have thought to turn to Kuroda for modifying Lu. Thus, it would not have been obvious to combine Lu and Kuroda.

More specifically, Lu is concerned with improving the display contrast of a liquid crystal **display device**, and more particularly, a colored display.² On the other hand, Kuroda is concerned with providing a high density **optical disk** which can be used with a conventional CD player.³ Specifically, Kuroda is concerned with the spectrometry characteristics so that the light absorption rate is large for the near infrared ray band but small for the reproduced light wavelength band. There is no concern with visibility of a display.

The backside substrate in Lu *reflects* light (see above), whereas the colored substrate 12 in Kuroda *absorbs* light. Thus, there is no reason one of ordinary skill in the art would have employed the light-absorbing colored substrate 12 of Kuroda instead of the light-reflecting colored layer 18 and substrate 12 of Lu since this would change the operability of the device in Lu.

² Col. 1, lines 6-10.

³ Col. 1, lines 5-13.

For at least the foregoing reasons, Appellants respectfully submit that Lu and Kuroda do not render obvious the inventions of Claims 1-2, 4 and 7-8.

(2) §103(a) Obviousness Rejection of Claims 3 and 5

Claims 3 and 5 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Lu and Kuroda, as applied to Claim 2, and further in view of Fukuchi.

To summarize, the Examiner asserts that Fukuchi discloses the particular subject matter introduced by dependent Claims 3 and 5. The Examiner concludes that it would have been obvious to modify the combination of Lu and Kuroda by reference to Fukuchi in order to obtain a substrate that is lightweight and with good mechanical characteristics, and in order to prevent damages to the resin substrate. Appellants refer to page 3 of the May 21st final Office Action.

The Error in the Rejection

The error in the rejection is that the combination of Lu, Kuroda and Fukuchi does not establish a *prima facie* case of obviousness against the subject matter of Claims 3 and 5.

Why Claims 3 and 5 are Patentable Under 35 U.S.C. § 103

Fukuchi does not cure the deficiencies of Lu and Kuroda, which are noted above at Section VII(1) of this Brief. In particular, Fukuchi does not provide a “clear and particular” suggestion to modify Lu by replacing its substrate 12 and colored layer 18 with the colored resin substrate of Kuroda.

Thus, Claims 3 and 5 are patentable for at least the same reasons as independent Claim 2, by virtue of their dependency therefrom.

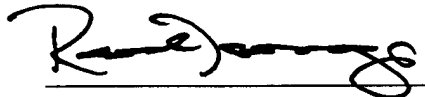
Appellants respectfully submit that Lu, Kuroda and Fukuchi do not render obvious the inventions of Claims 3 and 5.

Unless a check is submitted herewith for the fee required under 37 C.F.R. §41.37(a) and 1.17(c), please charge said fee to Deposit Account No. 19-4880.

APPEAL BRIEF UNDER 37 C.F.R. §41.37
U.S. Appln. No. 09/782,201

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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Date: January 11, 2005

CLAIMS APPENDIX

CLAIMS 1-5 and 7-8 ON APPEAL:

1. A liquid-crystal display device comprising a liquid-crystal panel, said liquid-crystal panel including:

a back side substrate constituted by a colored resin substrate having an electrode;

a visual side transparent substrate having a transparent electrode; and

a reflection type liquid-crystal layer interposed between said visual side substrate and said back side substrate.

2. A backside substrate comprising:

a colored resin substrate which is formed of at least a mixture of a transparent resin and a colorant, and

a transparent electrically conductive film on at least one side of said colored resin substrate,

wherein said backside substrate is attached to a visual side substrate having an electrode and a transparent resin.

3. A colored resin substrate according to claim 2, wherein said colored resin substrate is not thicker than 1 mm.

4. A colored resin substrate according to claim 2, wherein said colored resin substrate is black.

5. A colored resin substrate according to claim 2, wherein said colored resin substrate has a glass transition temperature of not lower than 90°C.

7. A liquid-crystal display device according to claim 1, wherein said back side substrate disposed on the back side of said liquid-crystal panel is composed of a colored resin substrate formed of at least a mixture of a transparent resin and a colorant, further comprising a transparent electrically conductive film on at least one side of said colored resin substrate to form the backside substrate, and said reflection type liquid-crystal layer is of a macromolecular dispersion type or of a cholesteric liquid-crystal type.

8. A liquid-crystal display device as claimed in claim 1, wherein said back side substrate absorbs light.

APPEAL BRIEF UNDER 37 C.F.R. §41.37
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EVIDENCE APPENDIX:

Pursuant to 37 C.F.R. § 41.37(c)(1)(ix), submitted herewith are copies of any evidence submitted pursuant to 37 C.F.R. §§ 1.130, 1.131, or 1.132 or any other evidence entered by the Examiner and relied upon by Appellants in the appeal.

(1) Examiner's Attachment to Final Office Action Mailed May 21, 2004 (two (2) pages - the definition of subclass 162 and the schedule of class 349).

APPEAL BRIEF UNDER 37 C.F.R. §41.37
U.S. Appl. No. 09/782,201

RELATED PROCEEDINGS APPENDIX

Submitted herewith are copies of decisions rendered by a court or the Board in any proceeding identified about in Section II pursuant to 37 C.F.R. § 41.37(c)(1)(ii).

NONE



- (1) Note. Included here are spacers formed by etching or cutting out portions of the substrate and growing spacers on the substrate.
- 157 **Plural types in single liquid crystal cell:**
This subclass is indented under subclass 155. Subject matter wherein two or more different types of spacers are included in a single liquid crystal layer.
- (1) Note. Included here are combinations of hard and soft or adhesive and nonadhesive spacers.
- 158 **Substrate:**
This subclass is indented under subclass 84. Subject matter wherein the features of a liquid crystal supporting surface (i.e., substrate) are specifically identified.
- 159 **Fiberoptic faceplate:**
This subclass is indented under subclass 158. Subject matter wherein each surface of the substrate is formed from ends of multiple thin transparent fibers of plastic or glass waveguides bundled together side-by-side.
- (1) Note. Excluded from this subclass are fiberoptic plates used as part of the illumination system. For such excluded subject matter see, SEARCH THIS CLASS, SUBCLASS below.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
62, and 63, for the use of fiberoptic plates as part of the illumination system in a liquid crystal device.
- 160 **With particular topology (i.e., other than for diffraction and spacers):**
This subclass is indented under subclass 158. Subject matter wherein a surface of the substrate is nonplanar, but wherein the nonplanar surface is not used for diffraction or as a liquid crystal spacer.
- (1) Note. Included here are curved or roughened surfaces.
- (2) Note. The nonplanar surface is not used for diffraction or as a liquid crystal spacer.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
156, for spacers formed integrally with the substrate.
201, for a diffraction grating using a liquid crystal.
- 161 **Heating or cooling element other than for exciting:**
This subclass is indented under subclass 84. Subject matter wherein a structure is employed for maintaining the liquid crystal material at a particular temperature either by increasing or decreasing the liquid crystal temperature.
- (1) Note. Included here are thermal conduction elements.
- 162 **Dual function layer or element:**
This subclass is indented under subclass 84. Subject matter wherein two or more elements or layers have been combined as a single element or layer having the functions of all of the original elements or layers.
- (1) Note. Included here are polarizers used as substrates, reflectors used as electrodes, color filters used as alignment layers, and electrodes used as antireflection layers.
- 163 **Nonchiral additive in the liquid crystal material:**
This subclass is indented under subclass 84. Subject matter wherein a material is added to the liquid crystal material other than for promoting a twist of the liquid crystal molecules.
- (1) Note. Included here are additives which selectively absorb light under certain conditions and additives which align with electric or magnetic fields applied to the liquid crystal.
- 164 **Fluorescent additive:**
This subclass is indented under subclass 163. Subject matter wherein the liquid crystal is mixed with a substance which fluoresces.



49-4

Attachment -

2

CLASS 349 LIQUID CRYSTAL CELLS, ELEMENTS AND SYSTEMS

156	...Formed as walls (e.g., between pixels) or integral with substrate	185	.In cholesteric phase
157	...Plural types in single liquid crystal cell	186	.In nematic phase
158	..Substrate	187	NOMINAL MANUFACTURING METHODS OR POST MANUFACTURING PROCESSING OF LIQUID CRYSTAL CELL
159	...Fiberoptic faceplate	188	.Changing liquid crystal phase
160	...With particular topology (i.e., other than for diffraction and spacers)	189	.Injecting liquid crystal
161	..Heating or cooling element other than for exciting	190	.Sealing of liquid crystal
162	..Dual function layer or element	191	.Aligning liquid crystal with means other than alignment layer
163	..Nonchiral additive in the liquid crystal material	192	.Defect correction or compensation
164	...Fluorescent additive	193	LIQUID CRYSTAL OPTICAL ELEMENT
165	...Pleochroic dye	194	.Passive liquid crystal polarizer
166	...Nonspacer particles significantly smaller than liquid crystal thickness (e.g., scattering centers, ferromagnetic particles, etc.)	195	.Antidazzle mirror formed from liquid crystal cell
167	WITH SPECIFIED NONCHEMICAL CHARACTERISTIC OF LIQUID CRYSTAL MATERIAL	196	.Beam dividing switch formed from liquid crystal cell
168	.Utilizing change between diverse phases (e.g., cholesteric to nematic)	197	..Including passive liquid crystal switch portion
169	.Utilizing change within liquid crystal phase (e.g., Grandjean to focal conic, etc.)	198	.Liquid crystal etalon
170	.Utilizing reversal in sign of dielectric anisotropy	199	.Liquid crystal sensors (e.g., voltmeters, pressure sensors, temperature sensors)
171	.Within smectic phase	200	.Liquid crystal lenses other than for eyewear
172	..Within chiral smectic phase (includes ferroelectric)	201	.Liquid crystal diffraction element
173	...Greyscale resulting from liquid crystal property other than solely Smectic A	202	..For beam steering
174	...Antiferroelectric		
175	.Within cholesteric phase		
176	..Using reflection characteristic		
177	.Within nematic phase		
178	..Negative dielectric anisotropy only		
179	..Twisted (or chiral) nematic or supertwisted nematic		
180	...Having particular parameter of twist		
181	...Having particular birefringence or retardation		
182	CELL CONTAINING LIQUID CRYSTAL OF SPECIFIC COMPOSITION		
183	.Polymer liquid crystal		
184	.In smectic phase		

FOREIGN ART COLLECTIONS

FOR	CLASS-RELATED FOREIGN DOCUMENTS UTILIZING A LIQUID CRYSTAL MATERIAL (359/36)
FOR 100	.With particular illumination (359/48)
FOR 101	..Having optical element (e.g., curved reflector behind light source, etc.) (359/49)
FOR 102	..Fluorescent light (e.g., FLAD type) (359/50)
FOR 103	.Microencapsulated liquid crystal (359/51)
FOR 104	..With particular encapsulating medium (359/52)
FOR 105	.Plural contiguous cells (359/53)
FOR 106	.Having electrodes arranged into rows and columns (359/54)
FOR 107	..With liquid crystal electrode excitation (359/55)